



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In Re Patent Application Of: Aikiyo et al.

Our File No: FP 672 US(CIP)/PCT

Application No: 09/884,147

Art Unit: 2828

Filed: 06/20/2001

Examiner: Jackson, Cornelius H

Title: Semiconductor Laser Module, and Method for Driving the Semiconductor  
Laser Module

Commissioner for Patents  
P.O. Box 1450  
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JUL 21 2004  
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**Declaration Under 37 CFR 1.132**

Sir:

I, Victor Lonmo, having personal knowledge of the facts set out below, do depose and state that:

1. I have had conferred upon me the degree of Masters of Applied Science specializing in robotics, and have designed specialized electrical circuits. I have a working knowledge of electrical circuits including the operation of the components described with reference to Fig. 4 of US patent 5,515,682 by Nagakubo et al.
2. Nagakubo et al. discloses a current limiting circuit in Column 6 lines 37 to 44. This section of Nagakubo et al. makes reference to Fig. 4 of the same reference.
3. Nagakubo et al. shows at Fig. 4 a circuit including resistors **29** and **30**. Resistor **29** influences the functioning of the circuit when an output from the operation amplifier (item **28** of Fig. 4 Nagakubo et al.) is a positive voltage. Resistor **30** acts in an analogous way when the output of the operational amplifier is negative. Resistors **29** and **30** act to prevent excessive voltage and current provided to the common electrical connection of resistors **29** and **30** from propagating to the Peltier device (item **1** of Fig. 4, Nagakubo et al.) during normal operation of the circuit shown in Fig. 4.

4. The temperature regulation provided by Peltier elements is critical to the proper functioning of a variety of circuits. In many cases the Peltier element is disposed within a sealed module and therefore replacing a failed Peltier element is often not practical. The “current limiting” function of the circuit shown in Fig. 4 of Nagakubo would likely not prevent damage to the Peltier element due to excessive current in unusual conditions. For example, if the common terminal of resistors **29** and **30** should receive an external electric shock, for example due to an external static charge, then it is likely that the Peltier element would be damaged, if not destroyed.

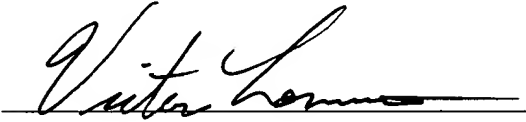
5. Thus, it is my feeling that the phrase “current limiting”, as used by Nagakubo, would be more accurately stated “current limiting during normal operation of the circuit”, or perhaps “current scaling”. Typically, highly non-linear electrical components are used in applications that require genuine current limiting. For example, a fuse is an excellent current limiting component. Providing an accessible fuse proximate the Peltier device that needs current protection will protect the Peltier device provided that no potentially harmful electrical signals are provided between the fuse and the Peltier element.

6. In my opinion, Nagakubo does not provide a circuit that would protect the Peltier element from excessive current provided by external electrical signals and therefore the use of a current limiting circuit in combination with a Peltier device as described with reference to the invention would not have been obvious to me or another person of skill in the art at the time of the invention based upon the teachings of Nagakubo.

7. I acknowledge that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

8. All statements made of Declarant's own knowledge are true and all statements made on information and belief are believed to be true.

Signed,

A handwritten signature in cursive script, appearing to read "Victor Lonmo", is written over a horizontal line.

Victor Lonmo

A handwritten date "15 July 2004" is written in cursive script over a horizontal line.

Date